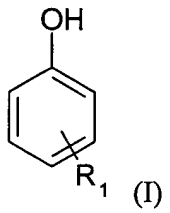
CLAIMS

1. Beads of a phenolic compound having a high hot solubility of at least 500 g/l (at a reference temperature of 90°C) and a large difference between its hot solubility and cold solubility, i.e. between the temperature in a fragmentation apparatus and the temperature of a cooling gas stream: the solubility preferably being at least doubled between said two operational temperatures; said beads being characterized by being both attrition resistant and porous.

2. Beads according to claim 1, characterized in that the phenolic compound has a high hot solubility of at least 1000 g/l (at a reference temperature of 90°C).

3. Beads according to claim 1 or claim 2, characterized in that the difference between the hot solubility and the cold solubility of the phenolic compound is large: the solubility is a multiple of at least 3 to 5 times between said two operational temperatures.

4. Beads according to one of claims 1 to 3, characterized in that the phenolic compound has the following formula (I):



(I)

in which formula (I), R_1 represents a hydroxyl group, an amino group, an alkyl group containing 1 to 4 carbon atoms or an alkoxy group containing 1 to 4 carbon atoms.

5. Beads according to one of claims 1 to 4, characterized in that the phenolic compound is selected from hydroquinone, pyrocatechin, resorcin and m-aminophenol, preferably hydroquinone.

6. Beads according to one of claims 1 to 5, characterized in that they are between 100 µm and 3000 µm in size, preferably between 500 µm and 1500 µm.

7. Beads according to one of claims 1 to 6, characterized in that their size, expressed as the median diameter (d_{50}), is from 300 μm to 2000 μm, preferably from 500 μm to 1500 μm.

8. Beads according to one of claims 1 to 7, characterized in that they have an attrition resistance of between 90% and 100%, preferably more than 95%, and more preferably more than 98%.

9. Beads according to one of claims 1 to 8, characterized in that they have an internal porosity, determined using a mercury porosimeter, between 0.5 and 0.75 cm^3/g.

10. Beads according to claim 5, characterized in that they have a bulk density (loose) of at least 0.3 and more preferably between 0.4 and 0.5.

11. Beads according to claim 5, characterized in that they have a degree of compressibility of 5% to 10%.

12. Beads according to claim 5, characterized in that they have an attrition resistance of between 90% and 100%, preferably more than 95%, and more preferably more than 98%.

13. Beads according to claim 5, characterized in that they have an internal porosity, determined using a mercury porosimeter, between 0.5 and 0.75 cm^3/g.

14. Beads according to claim 5, characterized in that they have good solubility in polymers.

15. A process for preparing the beads defined in one of claims 1 to 14, characterized in that it consists of preparing a hot concentrated aqueous solution of a phenolic compound then fragmenting the solution into droplets and cooling the droplets obtained in a stream of gas so that they solidify into beads which are then recovered and dried.

16. A process according to claim 15, characterized in that it consists of passing the phenolic acid solution through a nozzle to form droplets, solidifying the latter by allowing them to fall in a tower with a counter-current of a cold gas, then recovering the beads obtained.

17. A process according to claim 15 or claim 16, characterized in that an aqueous solution of a phenolic compound is prepared at a concentration that is as close to saturation as possible at the temperature under consideration, preferably at least 500 g/l, more preferably at least 1000 g/l.

18. A process according to claim 17, characterized in that the temperature of the solution is sufficiently high to obtain the desired solubility and is preferably between 80°C and 98°C, more preferably between 85°C and 95°C.

19. A process according to claim 16, characterized in that the nozzle employed is a single-hole nozzle or a multi-hole nozzle having between 1 and 3000 holes, preferably between 1 and 100 holes.

20. A process according to claim 16, characterized in that the nozzle employed comprises perforations the diameter of which is between 50 and 2000 μm, preferably between 200 and 600 μm.

21. A process according to claim 19 and claim 20, characterized in that the nozzle employed is a static nozzle, preferably a nozzle which is subjected to a high frequency electrical vibration system, preferably at 100 to 10000 hertz.

22. A process according to one of claims 15 to 22, characterized in that the droplets are brought into contact with a cold gas, preferably nitrogen or oxygen-depleted air the temperature of which is between -30°C and 30°C, preferably between -10°C and 10°C.

23. A process according to one of claims 16 to 22, characterized in that the residence time for the droplet from the nozzle outlet to its arrival in the recovery system is preferably between 1 and 10 seconds, more preferably between 3 and 5 seconds.

24. A process according to one of claims 15 to 23, characterized in that the beads are preferably recovered using a fluidized bed technique.

25. A process according to one of claims 15 to 24, characterized in that the composition of the beads of phenolic compound at the bottom of the prilling tower is:

- 10% to 50% by weight of water;
- 50% to 90% by weight of phenolic compound.

26. A process according to one of claims 15 to 24, characterized in that the composition of the beads of hydroquinone at the bottom of the prilling tower is:

- 25% to 50% by weight of water;
- 50% to 75% by weight of phenolic compound.

27. A process according to one of claims 15 to 26, characterized in that the beads are subjected to a stream of gas, preferably a stream of air the temperature of which is in the range 20°C to 90°C, preferably in the range 60°C to 90°C.

28. A process according to claim 27, characterized in that drying is carried out using a fluidized bed technique.

29. A process according to claim 27 or claim 28, in which the composition of the beads of phenolic compound after drying is as follows:

- 0.1% to 1% by weight of water;
- 99% to 99.9% by weight of phenolic compound.

30. A process according to claim 29, in which the composition of the beads of phenolic compound after drying is as follows:

- 0.1% to 0.6% by weight of water;

- 99.4% to 99.9% by weight of phenolic compound.